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ABSTRACT

This paper describes an effective mentoring approach involving an undergraduate preservice teacher and a college instructor designed to increase the instructor's computer literacy. The mentoring effort placed the teacher as learner and the undergraduate student as technology mentor. The pair established weekly meeting times and shared goals and objectives for their collaborative sessions. The mentoring relationship provided a risk-free atmosphere within which the teacher could ask basic questions. Initially, the student provided assistance in response to the teacher's very basic computing questions, but eventually, the student introduced more complex productivity tools. The collaboration resulted in the teacher's increased technological competencies which could be applied in an undergraduate teacher preparation course. The teacher went from using technology in very basic ways to infusing technology to enhance academic content and skill areas involving thinking, decision making, and problem solving. The student felt that the mentorship included three important elements of effective technology use: using positive reinforcement appropriately, supporting faculty as they set personal and professional technology goals, and applying a lesson from higher education (individualize technology supervision). (Contains 24 references.) (SM)

# The Teacher as Learner:
# An Undergraduate Student and Faculty Mentorship Success

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## Abstract:

Encouraging teacher education faculty and new teachers to use technology in teaching and learning is a challenge many colleges of education face. An effective mentoring approach with an undergraduate student and a college instructor provided successful one-to-one collaboration resulting in increased technological competencies and applications in an undergraduate teacher preparation course at Iowa State University. This paper discusses the rationale for a one-semester mentorship collaboration, provides perspectives from both the mentor and mentee, and suggests the potential for future implications at the college level.

## Introduction:

> "We are at a point in the history of education when radical change is possible, and the possibility of that change is directly tied to the impact of the computer."
>
> Seymour Papert
> *Mindstorms*, 1980

Nearly two decades ago, Papert prepared us for the Information Age at the time when excitement about the potential of technology to enhance learning abounded. What he didn't state is "radical changes" are slow to occur in teacher education programs at the university level. Use of computers is pervasive in the personal lives of most college students, yet their professional preparation implementing technology in education reflects only rudimentary levels of sophistication in most teacher training institutions.

While many colleges of education require an initial technology course on basic computer literacy, too few teacher education programs have faculty who are modeling instructional methods that integrate computer technology (Handler & Marshall, 1992; Office of Technology Assessment, 1995). Teacher training programs must recognize the need for training in technology, taught either in a specific class or across the curriculum. While scholars have advocated integrating technology in both methods and foundation courses (Berger & Carlson, 1988; Billings & Moursund, 1988; Bitter & Yohe, 1989), coursework needs to be redesigned to integrate technology in courses so that computers are used in relevant contexts. Computer technology should facilitate content learning from carefully designed course goals and objectives which, then, can be developed using appropriate technology-based activities and practices (Todd, 1993).

Preservice teachers learn to teach the curriculum using the technology they have learned or see modeled in their college classrooms. Without role models to observe in methods courses, preservice teachers are deprived of opportunities to witness models for teaching with computers (Bruder, 1989; Fulton, 1989). According to Wetzel (1993), most college

professors simply don't use it, in spite of adopted competencies that education majors should learn how to use computer productivity tools for effective instruction, and how to demonstrate that ability.

The International Society for Technology in Education (ISTE) and the National Council for Accreditation for Teachers (NCATE) have established Foundation Standards which suggest such competencies as use and evaluation of computers and related technologies; to operate software, multimedia and hypermedia, and telecommunications to support instruction; to demonstrate skills in productivity tools for personal and professional use, to understand equity, ethical, legal, and human issues related to technology; and to stay current in educational applications of computers and related technologies. In spite of the National Standards first initiated in 1991, many universities have not adhered to these guidelines. Universities should be the leaders in this movement (Wilson, 1995).

However, many college of education faculty do not have the requisite skills to model teaching techniques using computers, much less infuse ISTE Foundation Standards. Therefore, it is necessary for them to receive assistance in learning how to use computers, as well as implementation of computer technology in their respective courses. Using graduate students to mentor college of education faculty has shown to be an effective technique for integrating technology into the coursework of preservice teachers (Brewer, 1995; DeWert & Cory, 1996; Thompson, Hanson, & Reinhart, 1996; Thompson & Schmidt, 1994; Zachariades, Jensen, & Thompson, 1995; Zachariades & Roberts, 1995). However, not all colleges and universities have graduate programs in technology and, therefore, do not have available graduate students to serve faculty needs.

Consequently, the use of undergraduate students as technology mentors is a viable option for addressing technological limitations of college faculty members. Such an investigation should invite the development of basic technological competencies, implementation of technology in college course goals and objectives, and reflection of the mentoring process.

The success of any mentoring relationship is dependent upon several key factors:

1. Developmental, multidimensional relationship (Clemson, 1987)
2. "Spontaneity and personal fit" of the mentoring relationship (Clemson,1987, p. 86). Participants in a mentoring program must have the freedom to choose one another.
3. Both the mentor and mentee should benefit from the relationship (Clemson, 1985).
4. Mutual respect and trust (MacArthur, et. al, 1995; Clemson, 1987)
5. Mutual participation (Kay, 1990).
6. Open dialogue by meeting at least once a week for an hour throughout the semester.

The following perspectives from the participants reveal many of the keys to a successful mentoring relationships.

**College Instructor Mentee's Perspective:**

Given that one of my philosophical tenets as an educator is that the "teacher is a learner," I was eager to interact with one of my social studies methods students who had demonstrated tremendous technological sophisication during the previous semester methods course. In fact, his class project, an interactive internet e-pal program using *Hyperstudio* resulted in an additional two-credit independent study. I felt increasingly challenged by the need to develop my social studies methods course using technological competencies which I, admittedly, lacked.

Having had absolutely no formal coursework personally, in order to use or demonstrate technology-related skills, I was initally satisfied to use my university office Macintosh computer for word-processing, e-mail messaging, and intra-university communication. My limited infusion of technology was not related to "technophobia," but rather, to lack of understanding of what the computer can do and how technology could transform my college-level course.

Aware that I am a role model for my elementary education students and realizing preservice teachers benefit from integrated technology in their teacher training courses, I was anxious to begin to learn from my student, Jason. We established weekly meeting times and shared goals and objectives for our collaborative sessions held in my office. My introductory objectives included learning how to prepare mailing labels, access the internet, and use Word 6.0 while my end-of-the semester competencies included use of *Power Point*, *Hyperstudio*, how to prepare a data base using *File Maker Pro*, and assemble an address book in my e-mail. Notably, there were functions of the computer I did not know that I should know!

Admittedly, I had information "gaps" in my acquisition of technological knowledge. Importantly, our one-to-one mentorship provided a risk-free atmosphere to ask rudimentary questions about files, folders, menu bars, tools bars, and how an application works. Guided by my initial objectives to learn basic word processing and communication skills, Jason first provided assistance in response to my inquiries. Eventually, he introduced more complex productivity tools to present and organize information, in particular, those which would relate to my social studies methods course he'd taken the previous semester.

Once I realized that fundamental comprehension of one computer program helped me understand another and knowing that I could use an application without knowing every single feature of that program, I felt free to investigate various software applications and to progress to networked services!

Weekly journaling kept me aware of my three goals established prior to the mentorship:

1. To increase my own technological proficiencies personally and professionally
2. To impact student learning by modeling technology integration in my class
3. To expect students to incorporate technology in their lessons and activities

Throughout the semester, as I learned new skills, I was courageous enough to implement them in my social studies methods course or at professional meetings and conferences through:

- Organizing e mail address books and groups
- Using electronic communication with my students as well as university colleagues
- Preparing databases of names and addresses for professional and personal use
- Holding class in university computer labs with time for independent exploration
- Creating *Hyperstudio* program for introduction and explanation of my course
- Indexing WWW sites to explore social studies resources for lesson planning
- Preparing *Powerpoint* presentations for coursework and professional conferences
- Hooking up the LCD panel and PC at conferences and for in-class presentations
- Inviting technological use and display of student work in my course
- Providing independent options for students (like Jason) who wanted to do more
- Investigation of exciting new software for course use and development
- Upgrading my word processing version (*Word* 6.0) and using more features
- Asking questions and expecting the best of myself in searching for answers

In summary, I realized the power of new technologies to impact teaching and learning. Technology wasn't primarily used to automate what I already did, in ways I had always done it. Technology was infused to enhance academic content and skills areas involving thinking, decision-making, and problem-solving experiences. I now have increased proficiencies to explore technological advancements in order to improve instruction for my students, to integrate computer-related technologies in my professional activities, to increase the use of technology among preservice teachers in my courses, and to uphold expected ISTE competency levels.

At the time of this writing, I have students creating theme unit constructs using *Inspiration* webs, communicating with elementary "key-pals" using e mail, searching the internet for professional teaching strategy resources, creating newsletters using *The Writing Center*, building electronic portfolios, evaluating state-of-the-art geography software, and connecting to my homepage (which is not too exciting yet). But, I've certainly progressed from mailing labels! I confess that I still use a little red grade book for compiling student grades--maybe in order to sit in front of the fireplace to compute end-of-the-semester marks and to contemplate how much I've learned. My PB 1400c laptop, however, is on order!

**Undergraduate Student Mentor's Perspective:**

Presented with the opportunity to participate in a mentoring project, I was excited and did not waste any time in accepting the challenge. As an undergraduate student, the number of opportunities such as this are few and far between. Needless to say, I was eager to work with a faculty member to learn and integrate technology into their personal and professional work. The faculty member (Sally) to whom I was "assigned" was my instructor for Social Studies Methods the previous semester.

Having had a strong emphasis in educational technology in my coursework and having worked in the Iowa State University Technology Support Office, I was ready to apply all that I had learned. At this point in my academic career, I felt challenged to "produce" or "provide" something above and beyond the usual undergraduate curriculum. The mentoring project was an endeavor that I felt would help me grow personally and academically.

During our initial meeting, Sally and I set up weekly meeting times and shared our goals and objectives for the mentorship. Sally prepared 14 goals and objectives she wanted to accomplish throughout the semester. I had also printed a list of my goals for the semester. Our perspectives were actually quite different, however. While mine were broad applications infusing technology in education, hers were more specific to her course development.

I was participating in this mentorship with the expectations of playing a role in helping Sally develop as the premiere computer using educator in the College of Education. My overall goal was for Sally to become the leading example for other faculty to follow. The specific goals that I printed out for our first meeting were, specifically, lofty and teacher-oriented. My goals addressed want I wanted out of the mentorship and not what Sally wanted. It immediately became obvious to me that I needed to focus on the learner's immediate goals in order to be successful

After the meeting, I realized Sally had taken ownership of this experience and I felt it was important to work towards meeting those specific goals rather than my own. However, I realized that my overview would still play a role in the progression of the mentor relationship.

Sally's wanted to learn different applications such as *FileMaker Pro, Netscape, PowerPoint, and HyperStudio.* Convenience and organization were other skills Sally wanted to attain. These included organizing an address book/mailing labels with *FileMaker Pro* and basic functions of a word processor.

Initially, Sally focused attention on learning several applications and exploring functions and features of a program. I tried to emphasize the relationship between the applications (the big picture) --- how various programs have similar functions and features. Toward the end of the semester, Sally transferred that knowledge and recognization the relationships between applications, and as a result, began to focus less attention on the details, thus, shifting more focus on the infusion of technology in her course development emphasizing problem-solving and decision-making.

While there are a number of factors which played an important role in the success of this mentorship, a combination of factors may have weighed more heavily in the overall success. After examining mentorship literature, Willie Ennis, III and Demetrai Ennis (1995-1996) provide multiple suggestions which motivate technology use in teacher education. I feel our mentorship included the following elements of effective use of technology:

1. **Use Positive Reinforcement Appropriately.** The relationship between Sally and myself was extremely positive. Sally was such a great role model, in that she was always giving me, the teacher, positive reinforcement.

2. **Support Faculty as they Set Personal And Professional Technology Goals.** This suggestion reinforces my decision to focus our attention on Sally's own goals and objectives, thus, making each session personal and relevant to her own life/professional career. If I had only focused on my own specific goals, the entire mentorship would have lacked relevance and Sally's interest might have diminished.

3. **Apply a lesson from Higher Education: Individualize Technology Supervision.** There is little doubt that our one-on-one working relationship was a key factor in our success. Working in this 1 : 1, situation we were able to form a positive relationship, not only professionally, but a personal friendship too. Developing such positive relationship helped make this a truly enjoyable experience for the both of us. Working 1 : 1, both of our needs and concerns were addressed immediatley. In a workshop setting, it is typical of participants to become frustrated when help is not immediately available. Another benefit to our collaborative relationship, is that we focused total attention on the task at hand, which allowed us to make a great deal of progress in a short amount of time.

Communication was another factor with a substantial role in the success of the mentorship. We frequently communicated through by e-mail or visiting in the halls. After typical 1-2 hour sessions we would usually review concepts from the previous session before moving on to a new topic. I e-mailed Sally a brief synopsis of what we did and what we (she) accomplished. I, occasionally, provided a quick review, outlining the basic steps involving in completing a particular task. I often sent her, my instructor, an assignment! She quickly responded to the challenge with both intellectual and technological acuity.

**Future Implications**:

Encouraging teacher education faculty and new teachers to use technology in teaching and learning is possible using effective mentoring with undergraduate students to increase

technological competencies and applications in teacher preparation courses. One-to one mentorships can provide cost-effective, personally-rewarding experiences for both students and faculty with motivation and freedom for faculty to learn at their own pace. The mentorship team can explore and investigate responses to individual technological needs, address challenges of complex and open-ended problems, rely on inquiry and invention rather memorization of procedures in instruction manuals. As Harrington (1991) suggests, there is a difference between preparing teachers to use technology and using technology to prepare teachers. If we only prepare teachers to use technology we limit the conception of the role of technology in education. Empowering undergraduate students as facilitators of technological learning experiences for university faculty enables both to take more responsibility for aquiring technological competencies. Its a win-win solution. Papert would be proud.

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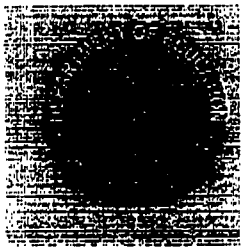

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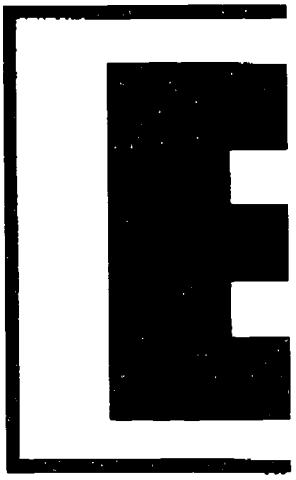

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